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23373 7590 07/13/2010

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

HU, HENRY S

ART UNIT

PAPER NUMBER

1796

DATE MAILED: 07/13/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/572,779

03/21/2006

Hiroyuki Tanaka

Q92902

9453

TITLE OF INVENTION: PERFLUOROELASTOMER SEAL MATERIAL

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	10/13/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

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B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
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WASHINGTON, DC 20037

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2855, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,779	03/21/2006	Hirooyuki Tanaka	Q92902	9453

TITLE OF INVENTION: PERFLUOROELASTOMER SEAL MATERIAL

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	10/13/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
HU, HENRY S	1796	524-236000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____
 Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.**

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10/572,779	03/21/2006	Hiroyuki Tanaka	Q92902	9453
23373	7590	07/13/2010	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			HU, HENRY S	
			ART UNIT	PAPER NUMBER
			1796	
DATE MAILED: 07/13/2010				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 643 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 643 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability**Application No.**

10/572,779

Examiner

HENRY S. HU

Applicant(s)

TANAKA ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Decision of Pre-Appeal Conference of June 2, 2010.
2. ☒ The allowed claim(s) is/are 5-9.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

DETAILED ACTION

1. This office action is in response to two things including: (A) Decision of Pre-Appeal Conference filed on June 2, 2010 (in response to Final office action of February 5, 2009), and (B) Amendment filed on November 6, 2009 (in response to Non-Final office action of July 6, 2009). With such an amendment, **Claim 5 is amended; non-elected Claims 1-4 (Group I) are cancelled, while new dependent Claims 6-9 are added.** To be specific, parent Claim 5 is amended in two ways including: (A) the molded perfluoroelastomer is pre-crosslinked by at least one specified system selected from **an imidazole crosslinking system, a triazine crosslinking system, an oxazole crosslinking system and a thiazole crosslinking system**, and (B) to clarify the measurement of **volume swelling rate** so as to overcome claim objection.

Two IDS' (1 page each) are received so far. Examiner **accepts Applicants' one drawing sheet with Figures 1-2** file along with this application (brief description is on page 4). **Claims 5-9** with only one independent claim (**Claim 1**) are now pending. An action follows.

2. 103(a) claim rejections under Final Office Action filed on February 5, 2009 are now removed for the reasons given in paragraphs 3-13 thereafter.

Allowable Subject Matter

3. Claims 5-9 are allowed.

4. The following is an examiner's statement of reasons for allowance: The above Claims 5-9 is allowed over the closest references:

5. The limitation of "once-amended" parent **Claim 5** in present invention relates to a process for preparing a perfluoroelastomer seal material. Said process "comprises" a step of treating a perfluoroelastomer molded article with a solvent having at least 50 % of a swelling rate based on said molded article, when said molded article is immersed at 60°C for 70 hours, wherein said molded article is obtained by crosslinking a perfluoroelastomer through at least one crosslinking system selected from the group consisting of an imidazole crosslinking system, a triazine crosslinking system, an oxazole crosslinking system and a thiazole crosslinking system,

wherein a volume of the untreated molded article is C as measured by the underwater substitution method, a volume of the molded article in a state of swelling is D and the swelling rate of the molded article is calculated by $[(D-C)/C] \times 100$ (%).

See other limitations of dependent Claims 6-9.

6. Regarding "the process of preparing a "purified" perfluoroelastomer seal material" limitation of parent **Claim 5**, process is now amended once. The molded perfluoroelastomer has been pre-crosslinked by at least one specified crosslinking system selected from an imidazole crosslinking system, a triazine crosslinking system, an oxazole crosslinking

system and a thiazole crosslinking system. According to the statement on page 7 at bottom of Remarks. The purpose of immersing the molded seal or sealing article in a solvent at 60°C for 70 hours is to remove a total of **two** things including: (A) the component having a low molecular weight, and (B) the un-crosslinked polymers, wherein said solvent has a specific property such as **at least 50 % of a swelling rate based on said molded article**. By doing so, the advantage is to **improve the adhesion strength** of the seal or sealing material to the material of the other end. Open language “**comprising**” is still applied to the process of parent Claim 5.

7. **Previous two 103(a) rejections cannot stand** as follows: As exactly pointed out by applicants on page 8 of Remarks, primary reference **Saito** only deals with fluorinated elastomers which requires to comprise hydrogen-containing units such as vinylidene fluoride. See Saito at paragraphs 0002, 0004 and 0046.

8. The other primary reference **Kawasaki (743)** only discloses using the polyamine crosslinking and there is no teaching or suggestion to adopt the step of present invention to solve the problem caused by the existence of the component having a low molecular weight and uncrosslinked polymers. See page 8 of Remarks.

9. Although a combination of **two** secondary references including **Yamato and Kawasaki (778)** may disclose that in the course of crosslinking molded fluoroelastomer or perfluoroelastomer, **polyamine crosslinking** (used by Saito and Kawasaki) is found to be functionally equivalent and interchangeable with other crosslinking systems such as **imidazole**

crosslinking system, triazine crosslinking system, oxazole crosslinking system and thiazole crosslinking system. Such a statement is not real. According to the art, each crosslinking system will not be exactly the same as other crosslinking system and it thereby would actually result at least somewhat different properties, particularly on the amount of low molecular weight and uncrosslinked polymers.

10 Other secondary references including **Amin** (116) and **Amin** (107) in combination still cannot fix such a deficiency even the leaking of “uncoupled and non-crosslinked” fluoropolymer is certainly undesired. See page 9 of Remarks. Based on this rationale, the motivation to link for 103(a) rejection is missing.

11. The leaking of “uncoupled and non-crosslinked” fluoropolymer is certainly undesired. Current process has already identified the perfluoroelastomer molded articles (which is pre-crosslinked by certain claimed crosslinking system(s)) can be purified by immersing in a specified solvent with the claimed temperature and time. Current process is thereby considered novel or at least it is an improvement from the art.

12. After further examination and search, the examiner found the following prior art did not teach the claimed limitation:

US 5,650,472 to Tatemoto et al. discloses a method of preparing some fluoroelastomer articles such as seal, which is amine resistant. It is achieved by curing the obtained

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copolymer of E/HFP/TFE with some curing agent such as organic peroxide to be with some co-curing agent such as triallyl cyanurate. See column 3, line 55 – column 4, line 12; abstract; column 4, line 31-35. However, **the immersing the molded article with some organic solvent is not disclosed or suggested.** Therefore, **Tatemoto** fails to teach or fairly suggest the current amine-immersing limitation of parent Claim 1.

13. As of the date of this office action, the examiner has not located or identified any reference that can be used singularly or in combination with another reference including the above references to render the present invention anticipated or obvious to one of the ordinary skill in the art. Therefore, the independent (product by process) **Claim 5** is allowed for the reason listed above. Since the prior art of record fails to teach the present invention, the remaining pending dependent **Claims 6-9** are passed to issue.

14. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu** whose telephone number is **(571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Vasu Jagannathan, can be reached on (571) 272-1119. The fax number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Peter D. Mulcahy/
Primary Examiner, Art Unit 1796

/Henry S. Hu/
Examiner, Art Unit 1796

July 3, 2010